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# Executive Summary

Pillar 1 - Strategic Direction: Build Dynamic Learning Environment
Goal 1.2 Globalization:

Objective 1.2A Develop educational opportunities in diversity, awareness, environmental sustainability and globalization (exchanges, scholarships, financial support, foreign languages).

Pillar 2 - Strategic Direction: Strengthen Collaborations
Goal 2.2 Partnerships:

Objective 2.2A Create new partnerships and communication models with business and industry to develop programs that meet present and projected workforce training and global development needs.

Objective 2.2F

Tammy Gwaltney has played a pivotal role in helping to secure and process much of this grant funding for the College.

The following are some of the IGEN funded sustainability initiatives at JALC from 2016 to present:

With funding received from the IL Science and Energy Innovation Foundation, IGEN awarded grants to Colleges to help local communities understand the smart meter deployment process and connect consumers with smart grid-related resources. This opportunity allowed JALC to host a series of both on and off campus community events in 2015, 2016 and 2017 to educate consumers on Smart Grid and Smart Meters. In 2017 work began to identify JALC as an IGEN Solar Training Program Community College Partner. In this capacity we began the process of integrating our existing solar courses into the IL Solar for All Solar Training Pipeline program under the then recently passed Future Energy Jobs Act (FEJA). The College partnered with a local solar provider on the Smart Grid community education events to include helping people understand the benefits of going solar. These workshop/seminars included the use of IGEN funded ά¸ƨdzΩØŜ Dƨűű KŜ tƨøŜℕé {ϒΙ·ℕű DℕŘŘ ŜIjdzŁJϒŜyű demonstration kits and reached a large number of JALC employees, students, and community members. (See Appendix A)

well received by both students and instructors.  A spring 2020 repeat was planned but had to be cancelled due to the Covid-19 shutdown of hands on classes.

John A. Logan quickly offered our support and became one of only five IL colleges participating in the grant. (See Appendix E) Year one funding from this grant will enable the College to build a simulated solar training roof with a working PV system on it which will be on the east side of the new HCCP building. When hands on classes are able to resume, students from the HCCP program will build the solar roof. A first program year solar install class of 18 was recruited and the first two of four day long sessions was completed before the class was suspended due to the Covid-19 shutdown. Tuition, class materials and instructor compensation was being paid for by the grant. At the completion of the course students would be eligible to take the North American Board of Solar Practitioners (NABCEP) PV Associate credential examination. The PV Associate credential gives evidence of training in such topics as solar PV system design, site assessment, solar sales, and solar installation and opens the door to employment in the solar industry. It is our hope that this class can be completed when we are able to again have face to face classes.

## College Partners in Sustainability

In addition to IGEN, the College has excellent working relationships with several other local and statewide organizations whose support is very valuable to us in our sustainability efforts. Among these are:

Located at the University of Illinois Urbana-Champaign, SEDAC is an applied research program affiliated with the College of Engineering that provides advice and analyses to private and public facilities in Illinois to help save energy in buildings. SEDAC performed an audit of the Community Health Education Complex (Logan Fitness) building in 2011 and have assisted with IGEN funded JALC initiatives such as the Behavior Change for Energy Efficiency ά5Ιǎ Ķō2Ι·ℕŘέ Pilot Program. In late 2018 funded by an Ameren grant, the College was able to engage SEDAC to perform a Level III Energy Assessment Report covering the entire main Carterville campus. According to the U.S. Green Building /2ʤzyŎλfΣ άϒ2ǎΰ Ŏ2ϒϒŜℕŎλΙ·f ōʤλfŘλyƎă ʤzǎŜ мл ΰ2 oл LJŜℕŎŜyΰ ϒ2ℕŜ ŜyŜℕƎè ΰĶΙ·yˇyŜŎŜǎăΙ·ℕè Ι·yŘ ĶΙ·ØŜ Ι·ϒLJfŜ 2LJLJ2ℕΰʤzyλΰλŜă ΰ2 ℕŜŘʤzŎŜ ΰĶŜλℕ ŜyŜℕƎè Ŏ2yˇăʤzϒLJΰλ2yˇfŜØŜfă℗έ {95 ! / estimated how much energy is used

The report identified multiple energy cost reduction measures ó9/waúăú and calculated payback, savings, I·yŘ ŜyŜℕƎè ℕŜŘdzŎúλ2y˜Ŧ2ℕ úKŜăŜ 9/waúă óăŜŜ úI·ōfŜ ōŜf2ǿúΦ SEDAC felt confident their recommendations would allow us to create an effective and financially prudent plan to help become more energy efficient.

SEDAC noted that the

, despite dealing with many aged mechanical systems dating to original construction when energy use was of negligible concern. In summary they indicated our campus energy usage per kBtu/ft$^2$ is below the median national reference for site energy use for universities and colleges which is commendable considering the aged mechanical, electrical, lighting and control systems staff have to deal with. The College is working diligently to implement the recommended measures as much as time and funding allow. (See Appendix F)

### Pool Chemical Controller Replacement Project

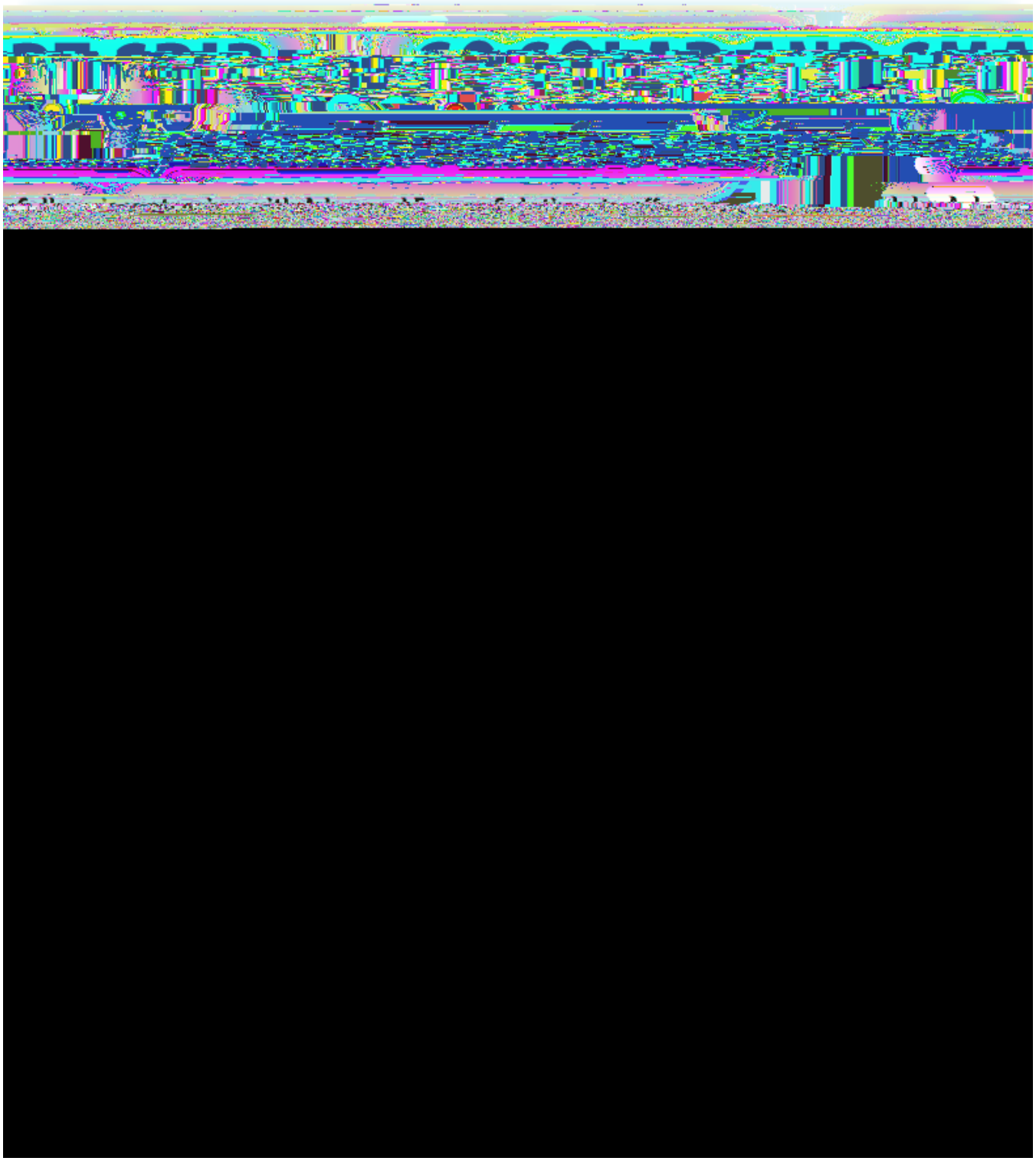
This 2019 project involved replacing an old, inefficient and inaccurate automated pool chemical controller system. For sometime staff at Logan Fitness have worked diligently to accurately and safely control dispensing of required pool chemicals. A new chemical controller system with more accurate sensors and capable of being remoted monitored and/or controlled by computer or phone app was installed. This project assures the safety of Logan Fitness patrons using our pools and is more environmentally friendly because the accuracy of chemical use is increased while waste is reduced.

### Interior LED Building Lighting Improvements

The College has done several interior lighting projects in past years to replace inefficient T-8 and T-12 fluorescent lighting and exterior lighting projects to replace high intensity discharge and sodium vapor parking lot and building lighting. With recent improvements in lineal LED technology, the College has

# APPENDIX A

## Smart Grid Flyer



## Program Description

andsystems analysis. This information demonstrated the capabilities of BuildingIQ's Predictive Energy Optimization (PEO). The detailed technical information is included in the results section of the report.

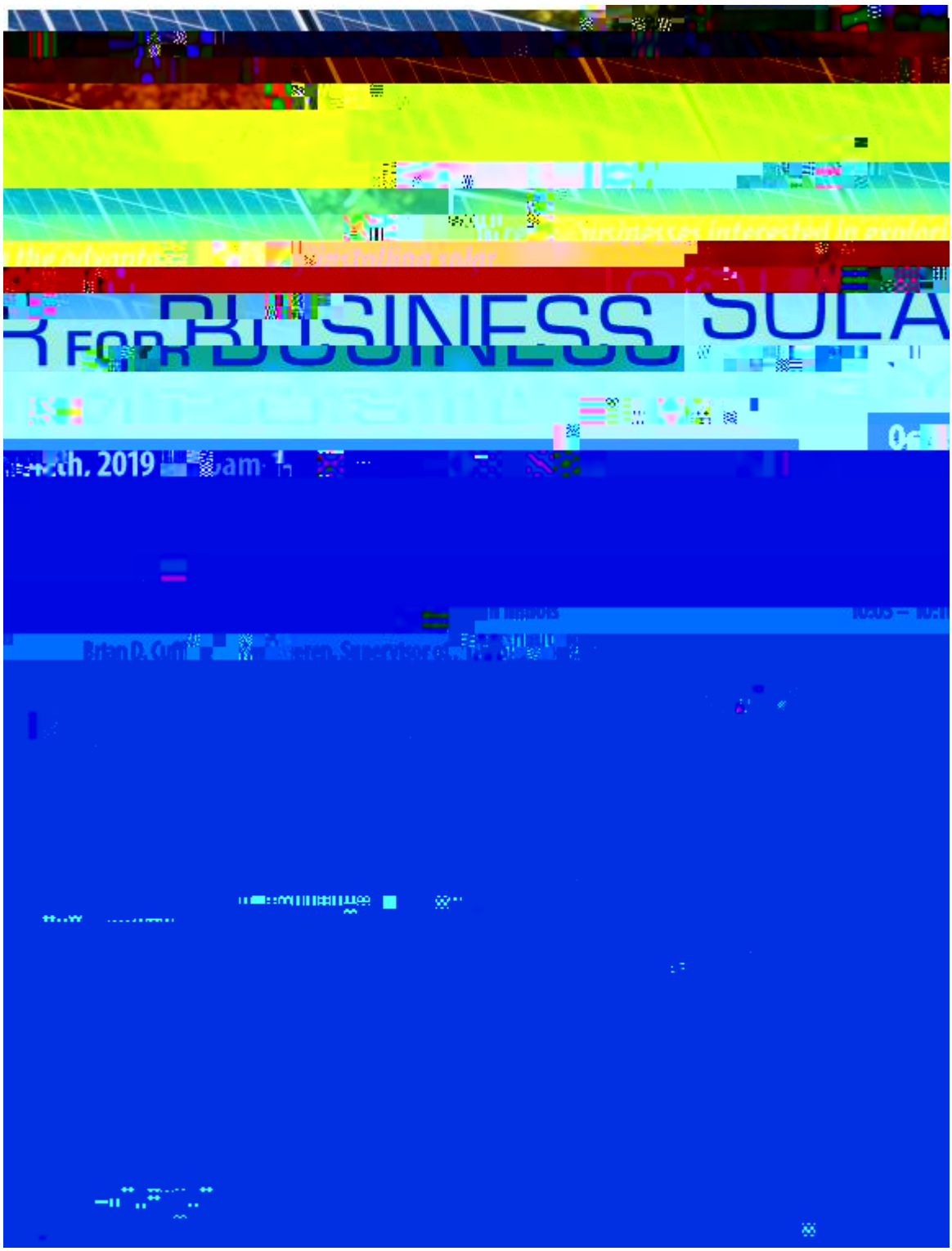
Develop and distribute measurement and verification (M&V) methodology and report to John A. Logan College: Baselining is an essential component of measurement and verification (M&V). It provides a definition of how the building would react in the absence of BuildingIQ control, thus serving as a numerical ground truth to compare performance against. Model training is performed over an agreed baselining period (i.e. a period over which BuildingIQ is not in control, taken as reflective of the baseline power consumption of the building) to create a master baseline. The master baseline is assumed to bereflective of historical power consumption. Any changes in the building operation (equipment/occupancy changes) that occur subsequently to that period will need to be accounted for as an adjustment to the master baseline. The baseline methodology consists of a multiple linear regression model that expresses a response variable as an error term, plus a mean that is conditional upon several factors. The best fit in the least---squares sense minimizes the sum of squared residuals (error), a residual being the difference between an observed value and the fitted value provided by a model. The power prediction, at a given time, depends on outside air temperature/humidity, building thermal mass, and a derived occupancy based on daily and hourly energy consumption changes. BuildingIQ's M&V conforms 100% to the international standard IPMV.

## Results

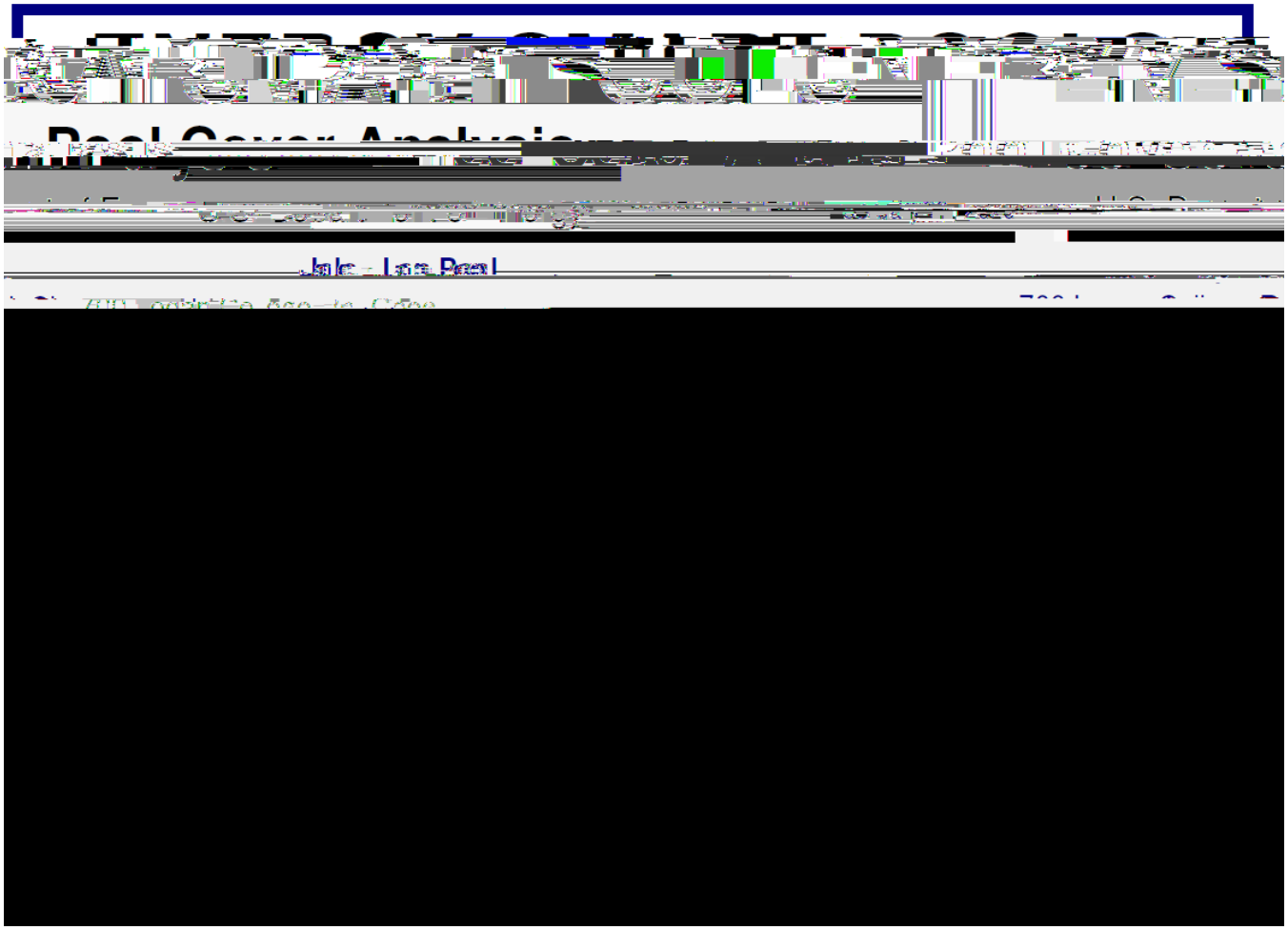

Optimization
70
1.0
Supply Air
BMS
Monitor Only

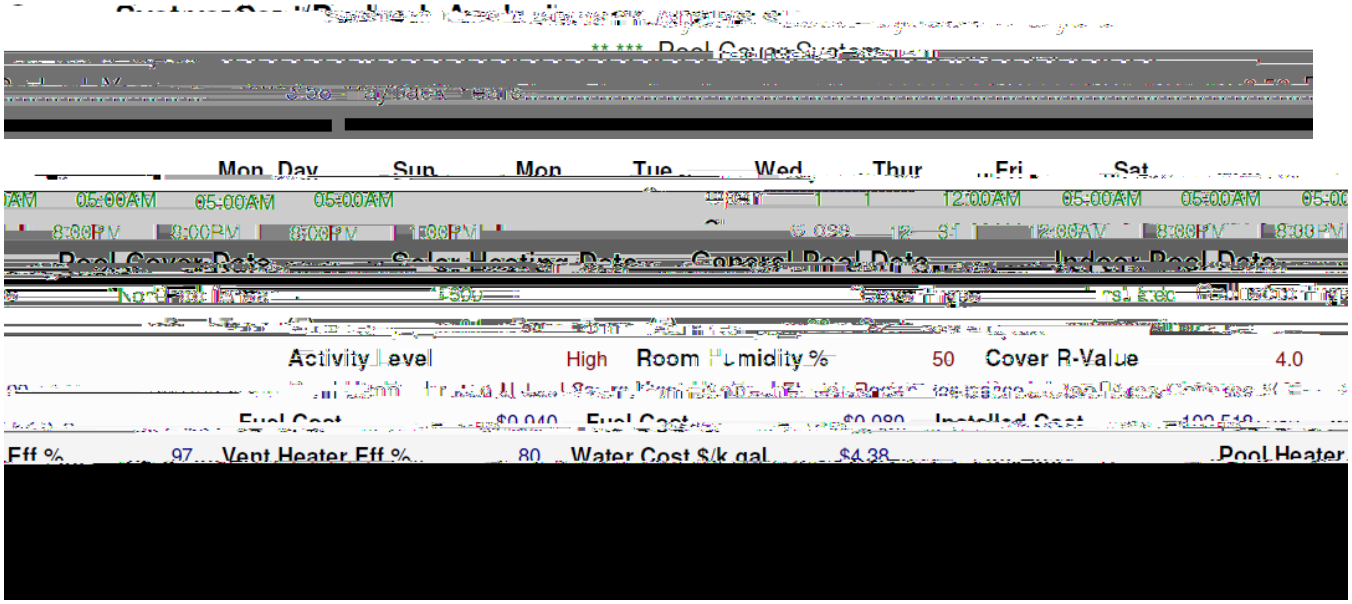

75
1.5
Duct Static
Reports
-0.5
Zone Temperature
Configuring
55

#Ï Î ÃÌÕÓÉÏ Î 8

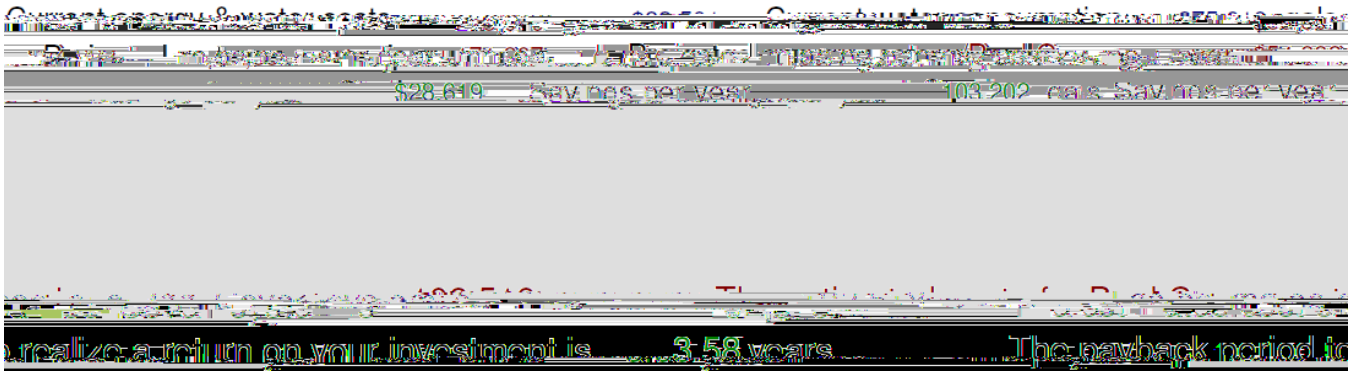


## Lap Pool Analysis

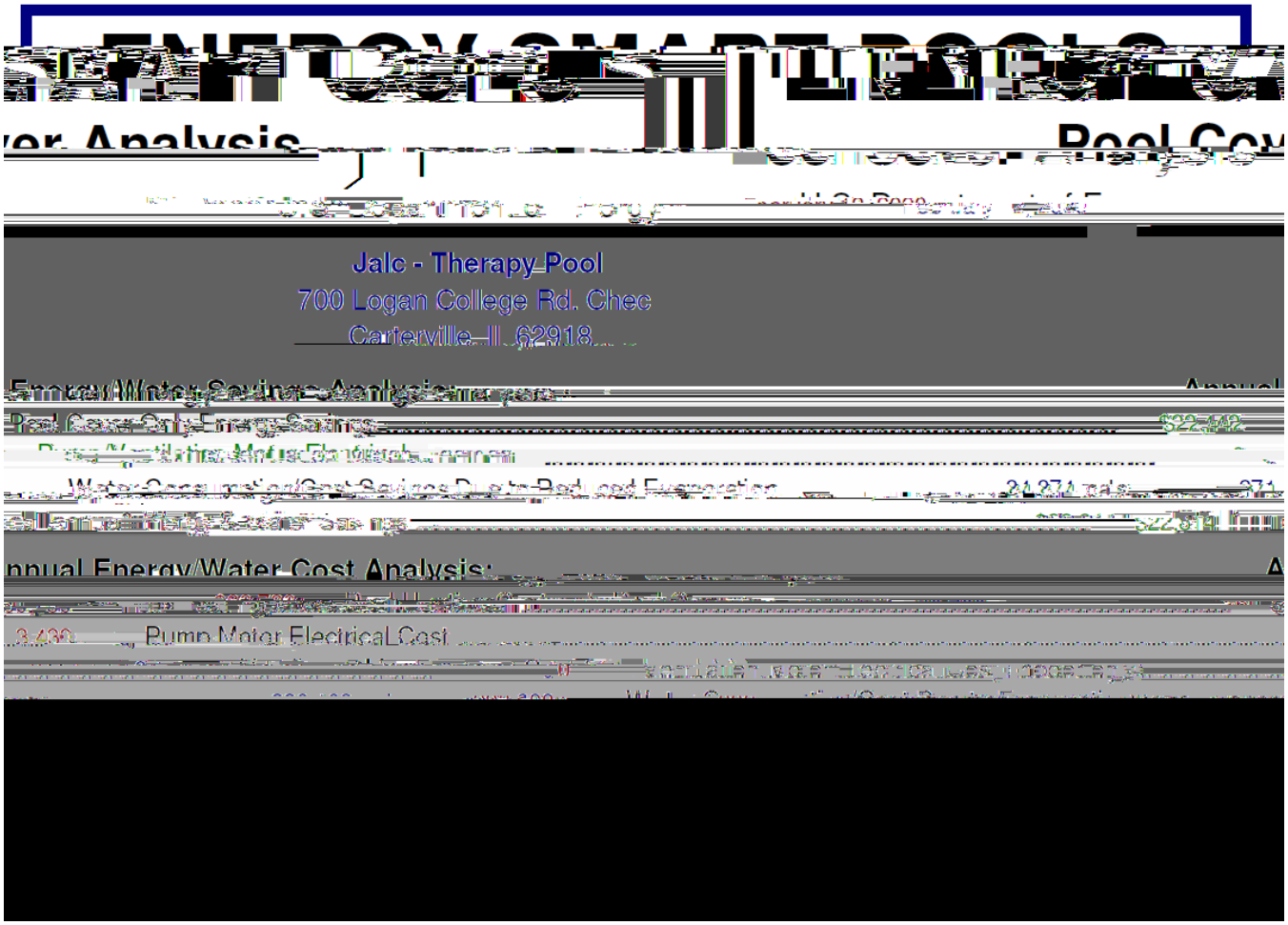




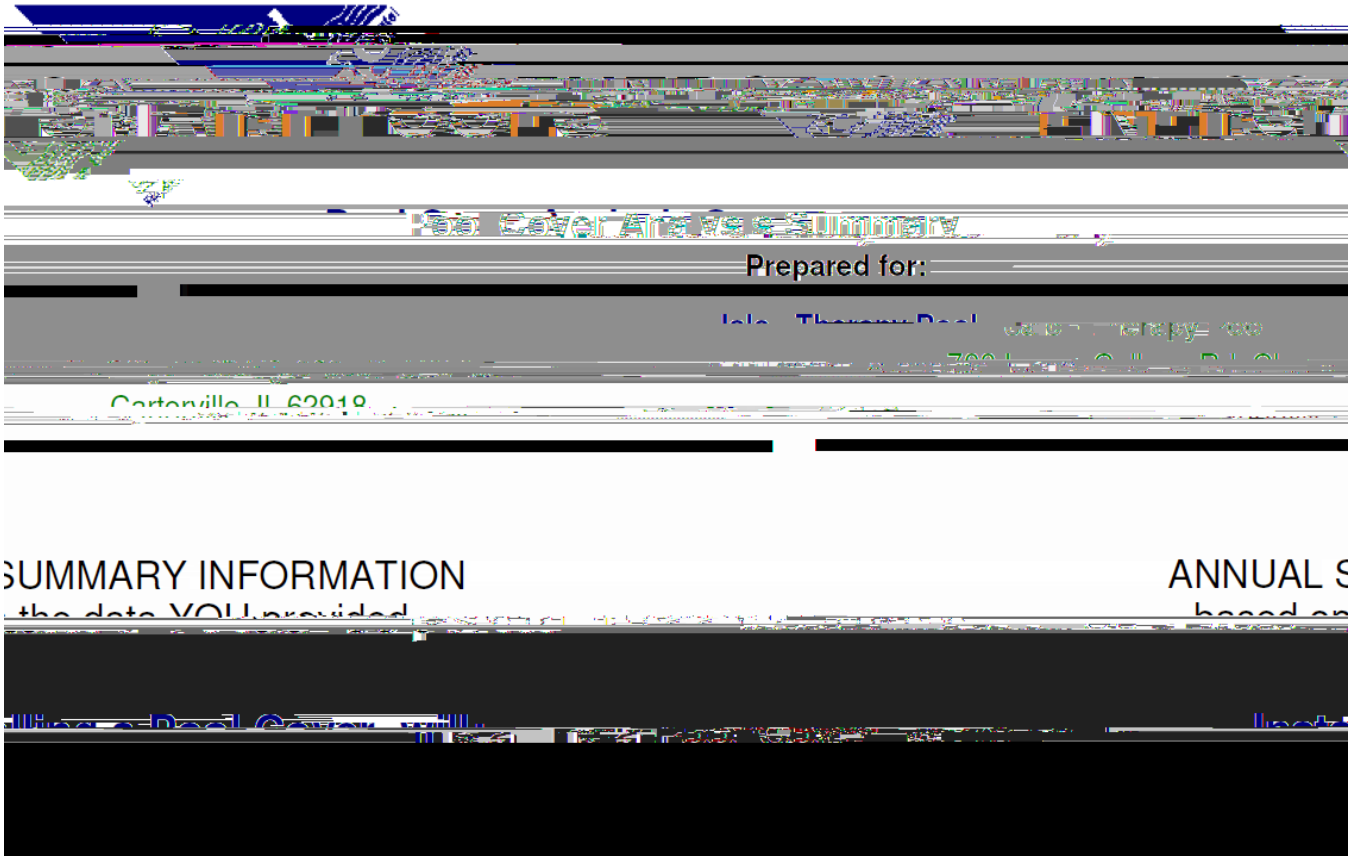
## Lap Pool Analysis Summary



## Therapy Pool Analysis

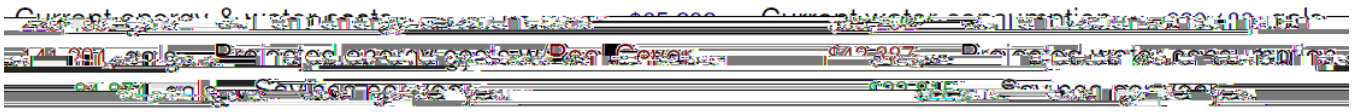



## Therapy Pool Summary









*This report was prepared as the result of work by a member of the staff of the Smart Energy Design Assistance Center (SEDAC). It does not necessarily represent the views of the University of Illinois, its employees, or the State of Illinois. SEDAC, the State of Illinois, its employees, contractors and subcontractors make no warrant, express or implied, and assume no legal liability for the information in this report; nor does any party represent that the uses of this information will not infringe upon privately owned rights. Reference to brand names is for identification purposes only and does not constitute an endorsement. All numerical data are order of magnitude estimates and the number of digits shown is an artifact of the calculation procedure; they are not meant to imply greater accuracy or precision. SEDAC is an applied research program at the University of Illinois at Urbana-Champaign. SEDAC works in collaboration with the 360 Energy Group.*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|---|---|
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| | Ryan Siegel<br>Senior Energy Engineer<br>217.300.6495<br>rwsiegel@illinois.edu |

## Acknowledgements

The Smart Energy Design Assistance Center (SEDAC) would like to thank Tim Gibson, of John A. Logan

The recommendations in this report are designed to allow the facility to create an effective and financially prudent implementation plan to be used to help the building become more energy efficient. The report should be used as a tool to facilitate budgetary planning and obtaining funding/financing. Eligible public-sector incentives are described in this report as well as other opportunities for need-based grants and other funding sources. All information is current at the time of the assessment; for up-to-date information on funding or incentives, contact SEDAC any time at 800.214.7954. Alternatively, you may contact your utility. Implementing the recommendations in this report will reduce energy consumption, help improve occupant comfort and reduce vulnerability to fluctuations in future energy costs. This report can also help towards obtaining LEED® and ENERGY STAR building certification.

## Introduction

The Public-Sector Design Assistance Program is an energy efficiency program that provides millions of dollars in rebates to public facilities that make large-scale equipment improvements to their electric and natural gas systems. SEDAC supports the Public-Sector Design Assistance Program in advocating the efficient and effective use of energy by businesses and public buildings throughout Illinois. The objective of SEDAC is to encourage communities, building owners and operators, design professionals, and building contractors to incorporate energy efficiency practices and renewable energy systems.

reputation as a socially responsible entity, and improved productivity/morale. Energy

# 2 Energy Consumption Analysis

The building's energy

# Technical Reference

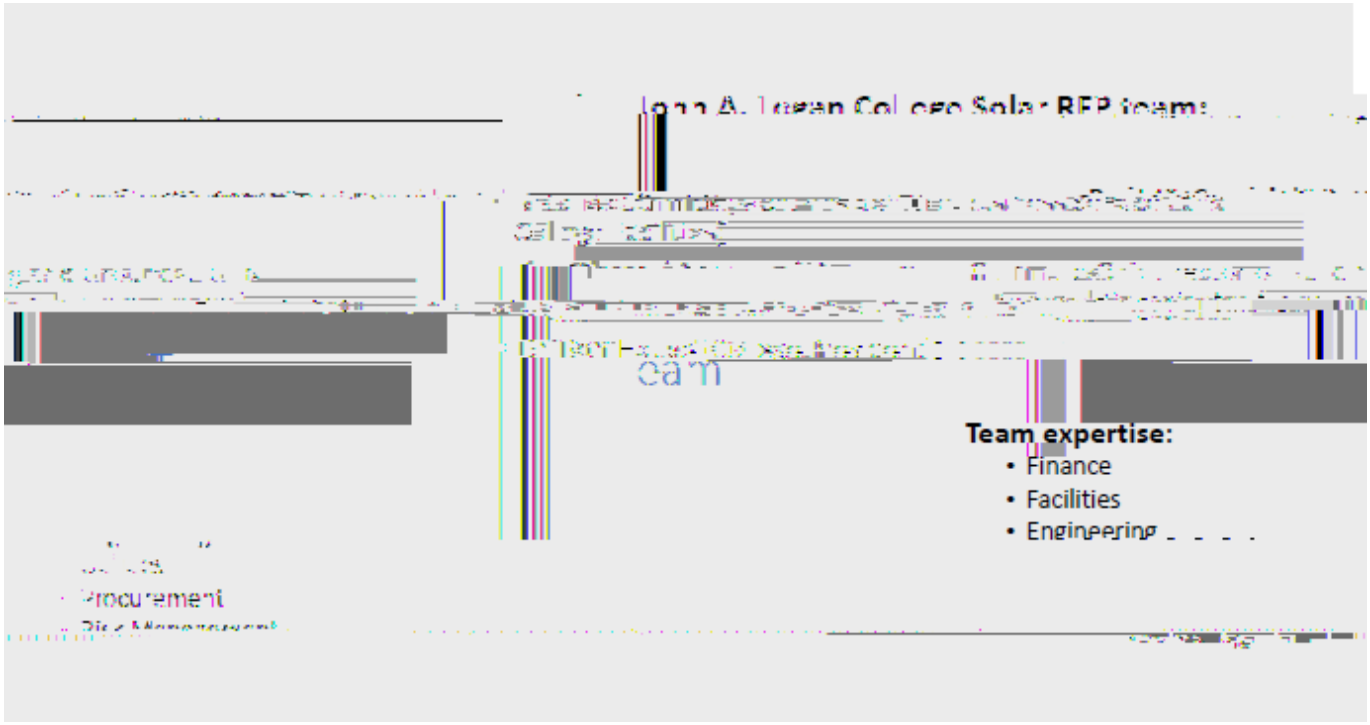
U.S. National Median Reference Values for All Portfolio Manager Property Types

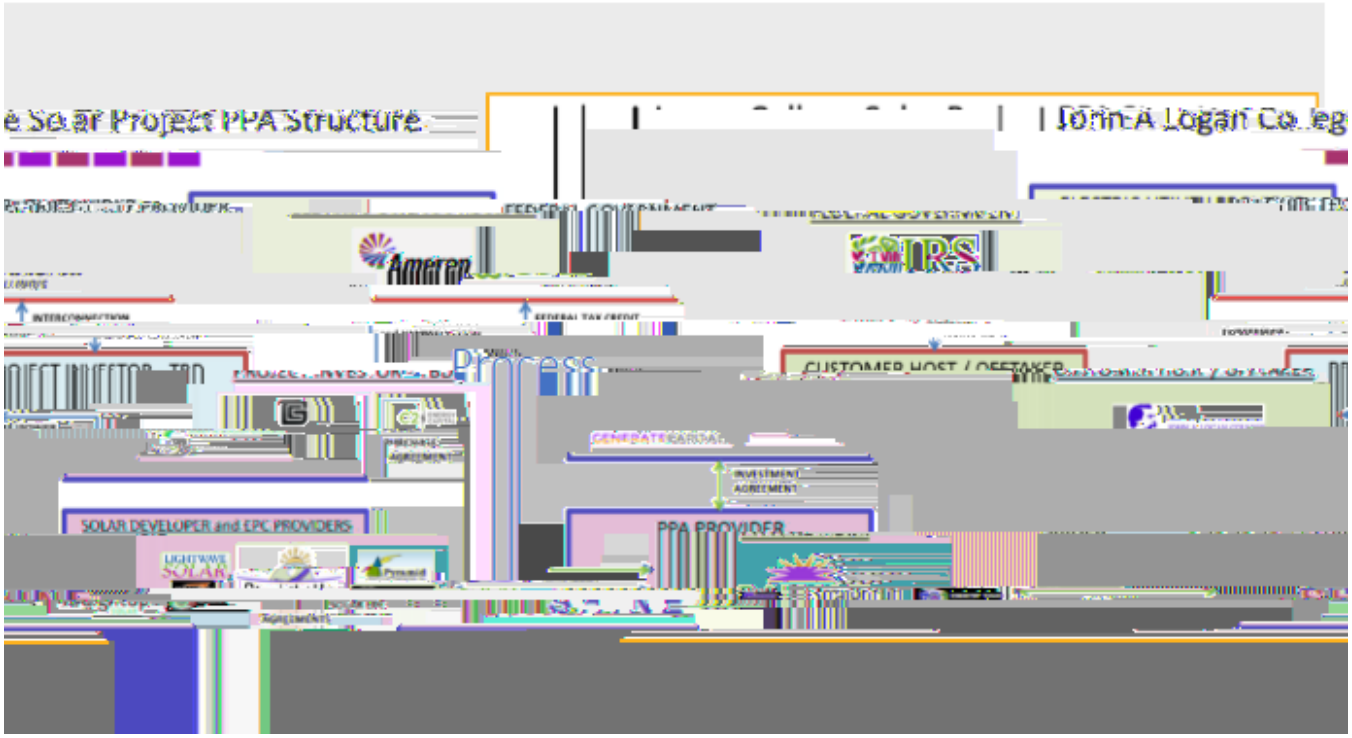
| Broad Category | Primary Function | Source EUI (kBtu/ft$^2$) | Site EUI (kBtu/ft$^2$) | Reference Data Source - Peer Group Comparison |
|---|---|---|---|---|

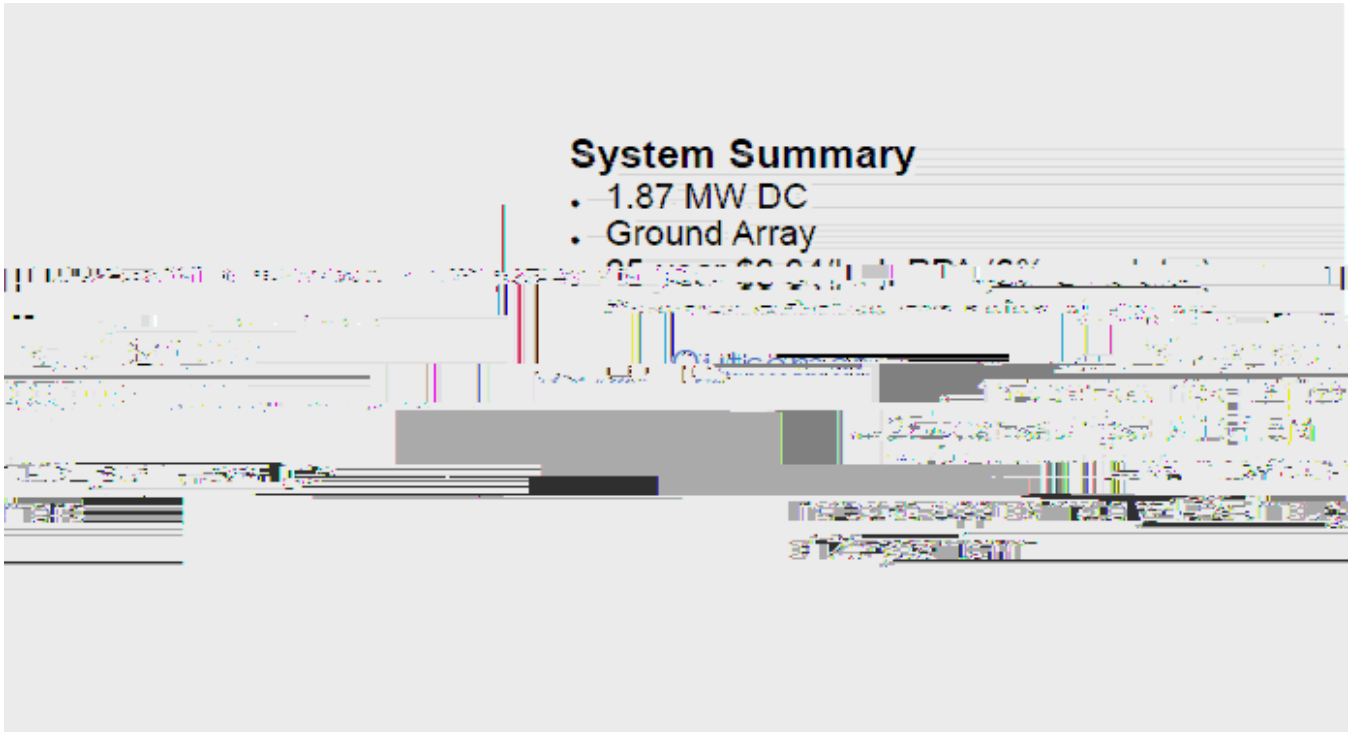
## JALC Energy and Cost Breakdown

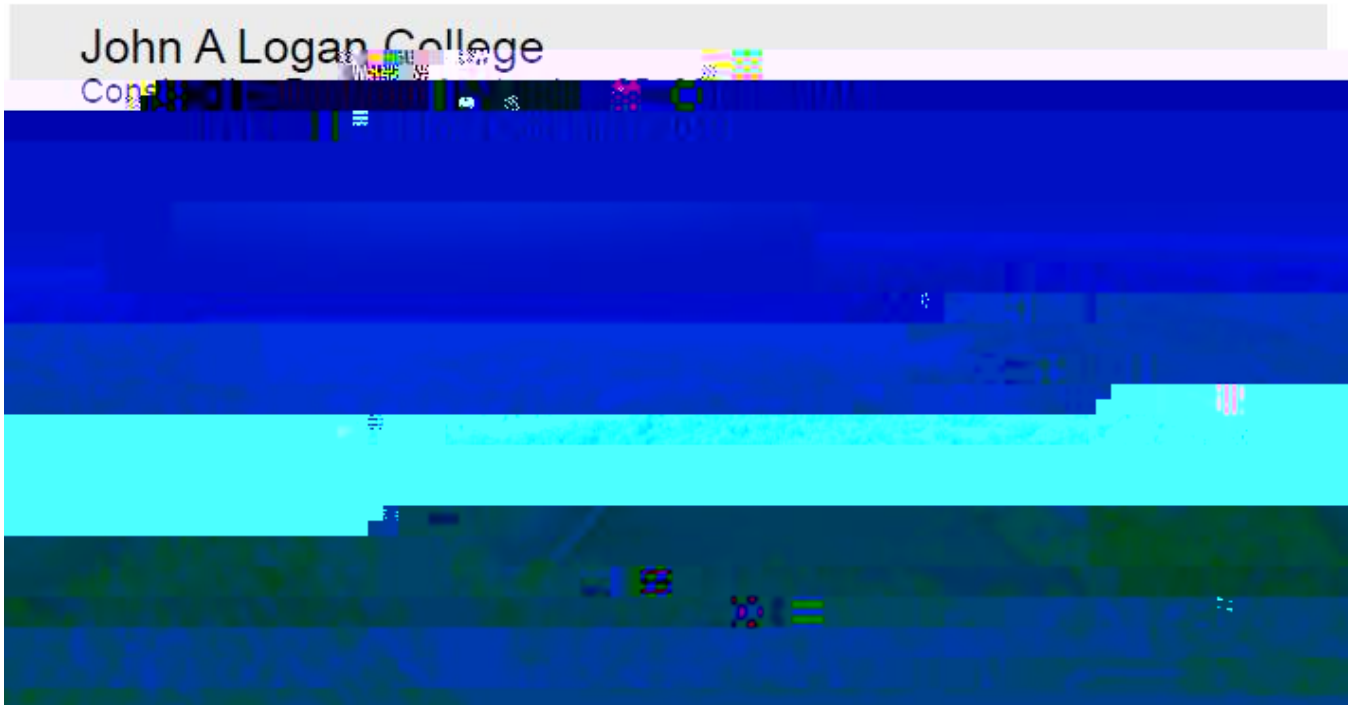
# APPENDIX G

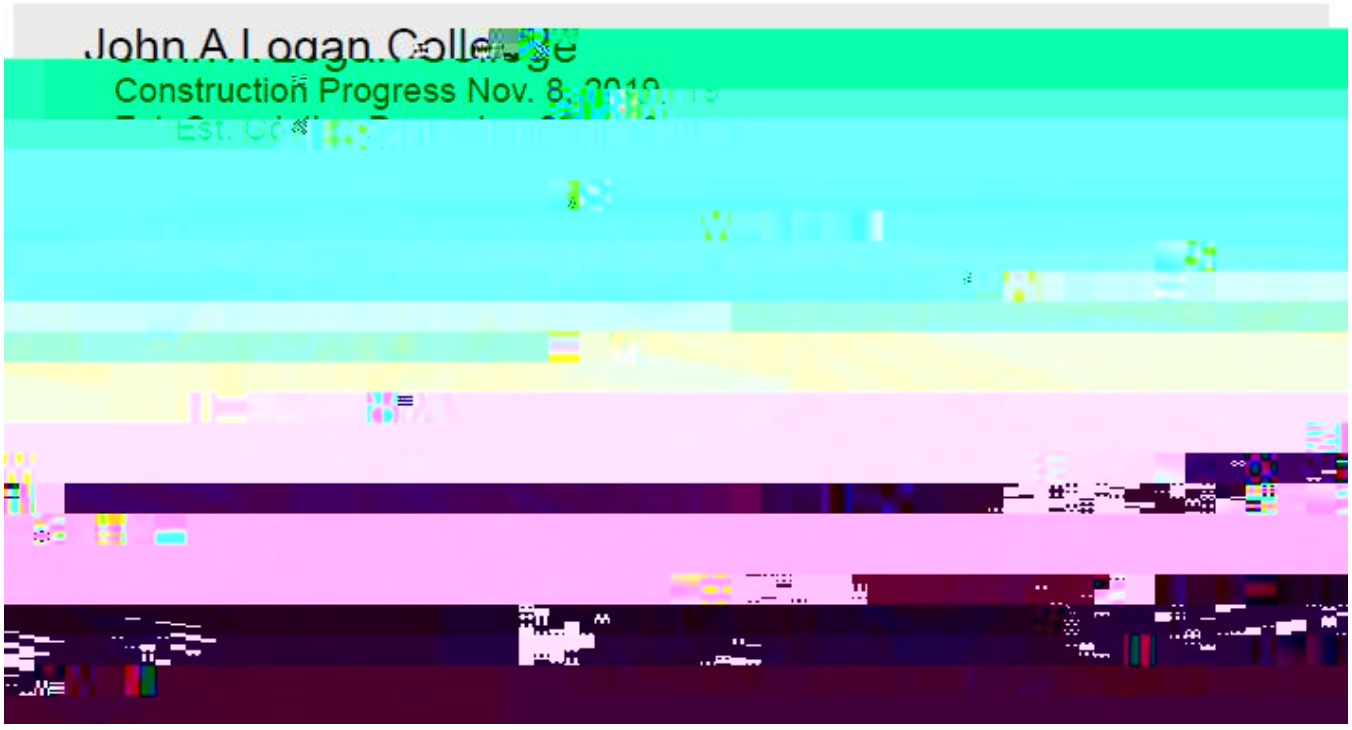

The Scope of this module includes a review of the team,

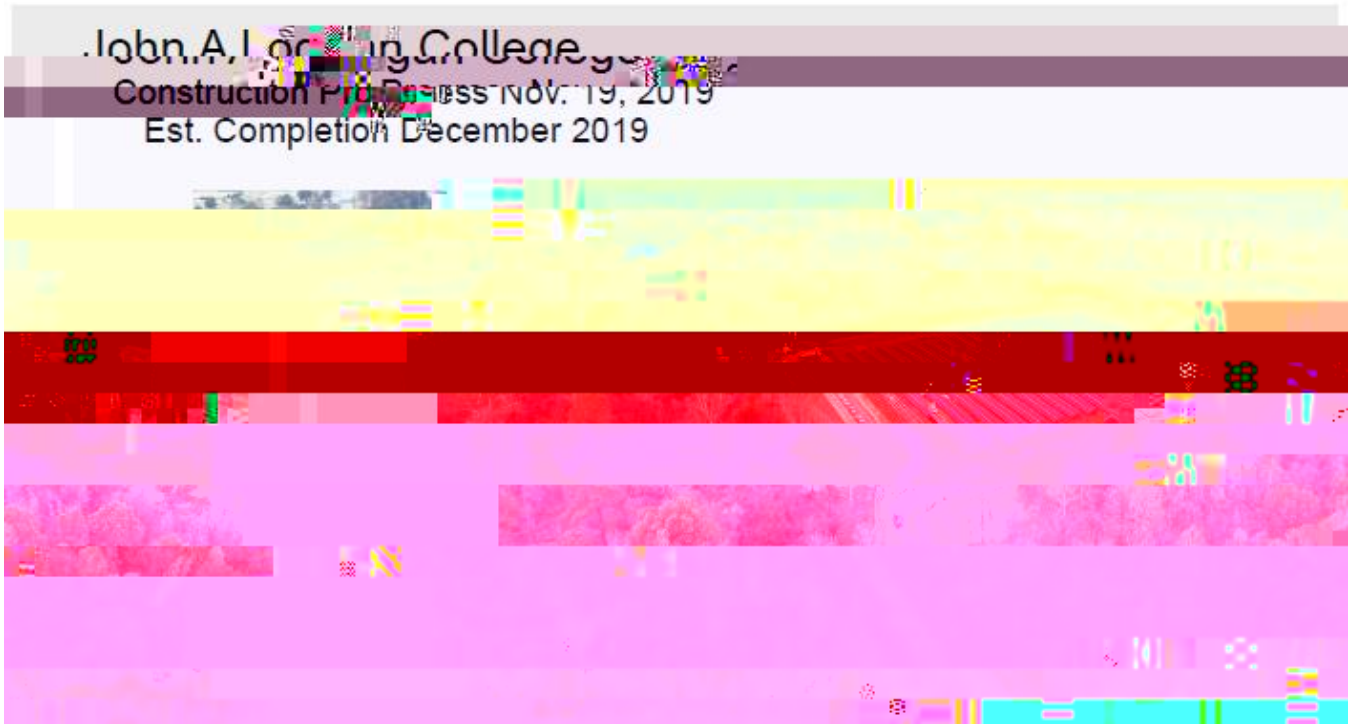

Team expertise:
• Finance
• Facilities
• Engineering
Procurement

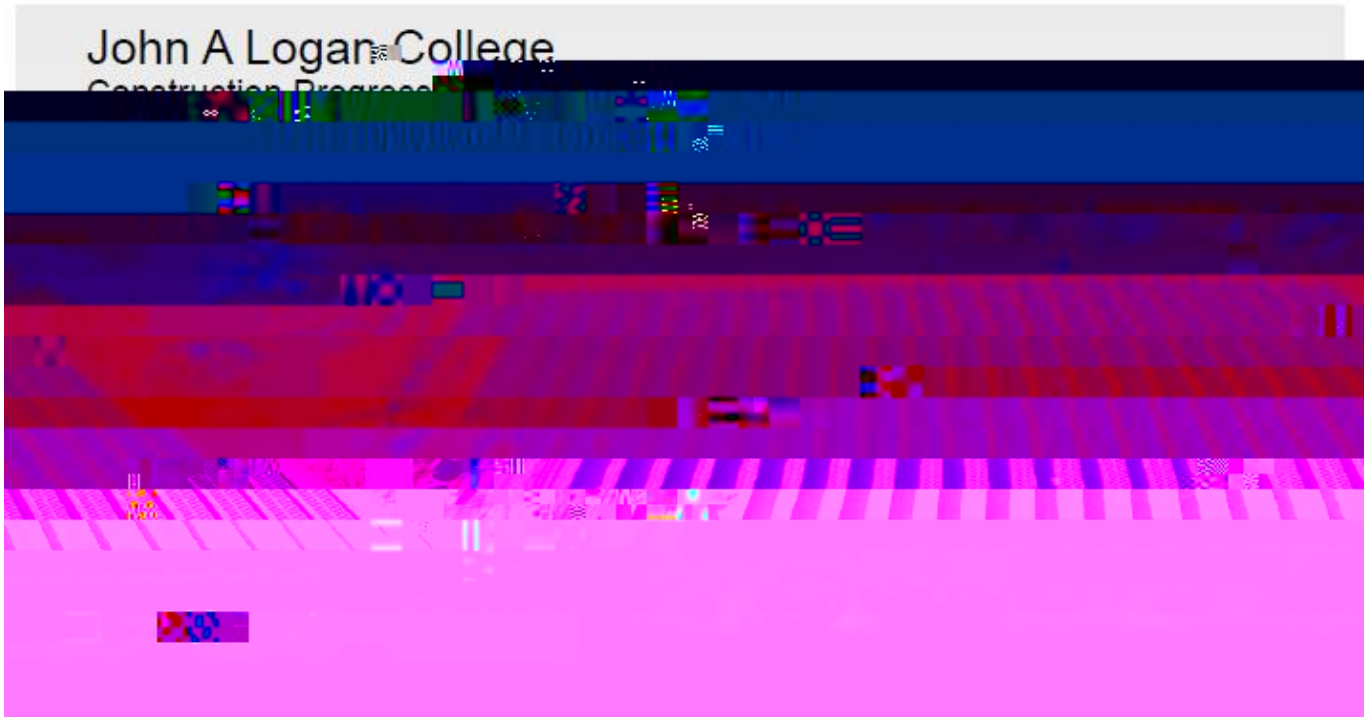

Solar Project PPA Structure
John A Logan Co leg
Ameren
IPS
Process
SOLAR DEVELOPER and EPC PROVIDERS
PPA PROVIDER


System Summary
1.87 MW DC
Ground Array


John A Logan College


John A Logan College
Construction Progress Nov. 8, 2019


Construction Progress Nov. 19, 2019
Est. Completion December 2019


John A Logan College